

CLAIMS

1. In a magnetoresistive device having a pair of ferromagnetic layers opposed to each other to obtain variations in magnetoresistance by an electric current flowing to the direction perpendicular to the film plane, a magnetoresistive device characterized in that said pair of ferromagnetic layers is composed of a magnetization fixed layer made of a crystalline ferromagnetic layer provided under said intermediate layer and a magnetization free layer being made of an amorphous ferromagnetic layer being provided above said intermediate layer.

2. A magnetoresistive device according to claim 1, characterized in that said magnetoresistive device has a laminated ferri structure.

3. A magnetoresistive device according to claim 1, characterized in that said magnetoresistive device is a tunnel magnetoresistive device using a tunnel barrier layer made of an insulating material or a semiconducting material as said intermediate layer.

4. A magnetic memory apparatus comprising:

a magnetoresistive device having a pair of ferromagnetic layers opposed to each other to obtain variations in magnetoresistance by an electric current flowing to the

direction perpendicular to the film plane;

a word line a bit line sandwiching said magnetoresistive device in the thickness direction, wherein said magnetic memory apparatus includes said pair of ferromagnetic layers composed of a magnetization fixed layer made of a crystalline ferromagnetic layer provided under said intermediate layer and a magnetization free layer being made of an amorphous ferromagnetic layer being provided above said intermediate layer.

5. A magnetic memory apparatus according to claim 4, characterized in that said magnetoresistive device has a laminated ferri structure.

6. A magnetic memory apparatus according to claim 4, characterized in that said magnetoresistive device is a tunnel magnetoresistive device using a tunnel barrier layer made of an insulating material or a semiconducting material as said intermediate layer.